Section 1
Introduction

Camp Dresser & McKee Inc. (CDM) has prepared this report documenting the Site-wide annual groundwater monitoring event conducted from March 12, 2007 through March 30, 2007 by Tait Environmental Management, Inc., of Santa Ana, California (Tait) at the Boeing Realty Corporation's (BRC's) Former C-6 Facility (Site) in Los Angeles, California (Figure 1).

This report identifies the groundwater monitoring wells that were sampled and chemicals that were analyzed during this March 2007 sampling event. This report also includes additional groundwater data collected concurrently with the March 2007 annual event in accordance with the Los Angeles Regional Water Quality Control Board (LARWQCB) General Waste Discharge Requirements (WDR) Order No. R4-2002-0030: Series 007 for the groundwater bioremediation program at the Former Building 2 portion of the Site. Currently, an application for an Individual WDR Permit to perform a biorecirculation pilot study at the Site is being reviewed by LARWQCB. The General WDR permit for Former Building 2 will be rescinded when the Individual WDR permit is approved.

In addition to the March 2007 annual groundwater monitoring event, additional data from the following groundwater monitoring and sampling events at the site are also provided in this report:

- A quarterly WDR groundwater sampling event conducted from December 4, 2006 through December 7, 2006.
- A limited groundwater gauging and sampling event of select C-Sand wells conducted from November 20, 2006 to November 22, 2006.
- Water level gauging data from a limited number of groundwater monitoring wells on October 18, 2006 as part of a joint gauging event with the Montrose Chemical/Del Amo Superfund Site.

1.1 Purpose and Scope of Work

The purpose of the groundwater monitoring report is to evaluate the lateral and vertical distribution of Volatile Organic Compounds (VOCs) in groundwater, the direction/gradient of groundwater flow, and to provide BRC with the data necessary to manage future groundwater remediation efforts at the Site. The groundwater and WDR monitoring programs are summarized in Tables 1A and 1B. The March 2007 groundwater monitoring event was performed in accordance with the Groundwater Monitoring Work Plan 2007 (CDM, 2007) which was approved by LARWQCB in March 2007 (LARWQCB, 2007). The March 2007 groundwater and WDR monitoring event included the following tasks:

- Measurement of static groundwater in 67 groundwater and bioremediation monitoring wells.

- Measurement of field parameters (from a calibrated probe placed in a flow through cell) pH, dissolved oxygen (DO), oxidation-reduction potential (ORP), electrical conductivity (EC), temperature, and ferrous iron (Fe [II]). In addition, hydrogen sulfide was measured in 19 wells, including the 16 bioremediation monitoring wells required by the general WDR permit.

- Collection and analysis of 10% of the samples in the field using a CHEMetrics, Inc. test kit as a quality assurance check on DO measurements.

- Collection of groundwater samples from 67 monitoring wells and analysis for VOCs by EPA Method 8260B, including the 16 bioremediation monitoring wells required by the general WDR permit. Note that three of the 16 wells, CMW001, CMW002, and CMW026 are also included as part of the annual groundwater monitoring program.

- Collection of groundwater samples from 34 wells, including the 16 bioremediation wells, for the following dissolved gases and general minerals analyses:

  - Dissolved gases (carbon dioxide, nitrogen, ethane, ethane and methane) by RSK-175 and SM 4500-C (carbon dioxide);

  - Total organic carbon (TOC) by EPA Method 415.1;

  - Sulfate, nitrite, nitrate, ammonia nitrogen, orthophosphate, and chloride by EPA Method 300 Series;

  - Manganese II (Mn II) by EPA Method 6010B; and

  - Total alkalinity by EPA Method 310.1.

- Collection of groundwater samples from 18 monitoring wells, including the 16 bioremediation monitoring wells, and analysis for total sulfides by EPA Method 376.2 required by the general WDR permit.

- Collection of groundwater samples from 13 wells, including six of the bioremediation monitoring wells, for *Dehalococcoides* bacteria analysis by Quantitative Polymerase Chain Reaction test (qPCR) to identify the amount of indigenous *Dehalococcoides* strains.

- Collection of quality control samples, including duplicates (1 per 20 wells - four total), and equipment/rinseate blanks, field blanks, decontamination water, and trip blanks (each at a rate of 1 per day of sampling - 12 days, 48 samples total).

- Performance of data validation on approximately 10 percent of the laboratory data for the primary samples as described in Section 3.6.

In addition, this event constitutes the first round of groundwater monitoring for wells EWB001 and EWC001 and the second round of groundwater monitoring for wells EWC002, IWC001, IWC002, and MWC024), all of which were installed and sampled in October and November 2006 (Figure 1). Each of these wells is slated to be sampled on a quarterly basis for the first year following well installation.

1.2 Report Organization

Section 2.0 presents and evaluates the groundwater monitoring and sampling results. The quality assurance/quality control (QA/QC) measures are summarized in Section 3.0. References used in the preparation of the document are listed in Section 4.0. Section 5.0 presents the figures while Section 6.0 presents the tables used in the preparation of the report.

Appendix A presents the groundwater monitoring and sampling procedures. Appendix B contains the groundwater sampling forms and field data. Water level hydrographs and VOCs versus time graphs are presented in Appendix C. The laboratory reports and chain-of-custodies are presented in Appendix D. The data validation package is included in Appendix E.